



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/617,764	07/14/2003	Kay Saalwachter	P8027US	4043

7590

05/21/2004

Kohler Schmid + Partner
Ruppmannstr. 27
D-70565 Stuttgart,
GERMANY

EXAMINER

SHRIVASTAV, BRIJ B

ART UNIT	PAPER NUMBER
----------	--------------

2859

DATE MAILED: 05/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/617,764

Applicant(s)

SAALWACHTER ET AL.

Examiner

Brij B Shrivastav

Art Unit

2859

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4-10,12 and 24-28 is/are rejected.
- 7) ☒ Claim(s) 2,3,11 and 13-23 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 7/14/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1, 4-7, 8-10, 12, and 24-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishii et al, Sensitivity Enhancement in Solid-State ^{13}C NMR of Synthetic Polymer and Biopolymer by ^1H NMR Detection with High-Speed Magic Angle Spinning; J. Am. Chem. Soc. 2001, Vol. 123 pp 2921-2922, and further in view of Zhao et al, Measurement of NH Bond Lengths by Fast Magic-Angle Spinning Solid-State NMR Spectroscopy: A New Method for the Quantification of Hydrogen Bonds, J. Am. Chem. Soc. 2001, Vol. 123, pp 11097-11098.

As regards to claim 1, Ishii et al teach a solid-state nuclear magnetic resonance (NMR) method for investigating a sample material that contains proton H and also spin- $\frac{1}{2}$ hetero-nuclei X, including the steps of increasing an equilibration polarization of X, suppressing proton magnetization, transferring polarization from X to H using a radio frequency pulse sequence to effect transfer between the nuclei X and spatially proximate protons H; wherein polarization transfer depends only weak couplings of nuclei X to spatially distant protons and weak couplings among the protons themselves, and recording the proton signals under a line narrowing condition having sample material spinning at a magic angle; wherein repeating each previous step

several times (figures 1-3, page 2921; column 1; paragraphs 1-2, pages 2921-2922, column 2 and column 1, respectively, second paragraphs). However, Ishii et al do not specifically teach to determine dipole coupling constant by analyzing the variation in intensity of proton signals received under magic angle conditions. Zhao et al teach determining dipole coupling constant by analyzing the variation in intensity of proton signals received under magic angle conditions by determining the binding separation between hydrogen and another hetero-nuclear nucleus (figure 1). It would have been obvious to one of ordinary in the art to adapt method of Zhao et al determining binding constant with the method of Ishii et al determining ^1H NMR in solid-state ^{13}C NMR, thereby increasing the sensitivity of the measurements for improved structural analysis.

As regards to claims 4-7, 8-10, 12, and 24-38, Ishii et al teach biopolymer analysis with X nuclei in natural abundance, having carbon and nitrogen nuclei, affecting polarization at different experimental steps, determining X-H separation using various combinations of RF pulses (figures 1-3).

2. Claims 2, 3, 11, 13-23 ~~are~~ objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

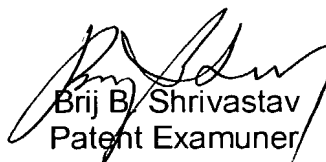
not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brij B Shrivastav whose telephone number is 703-305-0649. The examiner can normally be reached on 7 AM to 4 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego F. F. Gutierrez can be reached on 703-308-3875. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Bbs
May 10, 2004


Brij B. Shrivastav
Patent Examiner